

**METHOD FOR ADMINISTERING A SERVICE FOR A SUBSCRIBER**

For using an FMC service (FMC: fixed-mobile converged), the subscriber must be unambiguously identified and authorized (for example, in order to be able to carry out a correct charging). Given fixed-mobile converged services such as, for example, PCS (personal communication service) and CCS (corporate communication service), the service user sometimes employs a mobile terminal device and sometimes employs a fixed network terminal device.

In the mobile radiotelephone network, the unambiguous identification of the subscriber ensues automatically via the SIM card (SIM: subscriber identity module). The identification of the subscriber can also ensue automatically in the fixed network when the subscriber uses a terminal device that is administratively known to the FMC service and that is allocated to the subscriber, and when the fixed network supplies the calling line identity (connection number) of this fixed network terminal device to the FMC service logic.

Given employment of an arbitrary fixed network terminal (i.e. a fixed network terminal that was not administratively allocated to the subscriber by the FMC service), an automatic identification of the subscriber is not possible. However, a registration at one's own fixed network terminal device for employing this terminal device via a specific FMC service is also not possible, even though this would be meaningful in certain cases (for example, for teleworkers when specific calls from the connection are to be at the expense of the company (CCS service)).

Up to now, the fixed network has supported the use of outside terminals at one's own expense or, respectively, of one's own terminal at the expense of a third party only via the possibility of identifying and authenticating the calling party by means of an in-band dialogue. To that end, the calling party (for example, an IN service subscriber) must input a personal identification number (PIN) that the service logic compares to data stored in the network (for example, given credit card services or given UPT). Such a Prior-Art is known, for example, from the document EP-A-0 602 779.

The document WO 98 09425 A, further, discloses a system for handling calls with whose assistance a fixed network terminal device that is to be employed for the continuation of the call can be indicated given an initiation of a call via a mobile  
5 network terminal device.

The document EP-A-0844 799, finally, discloses a communication system for handling calls with whose assistance a mobile network subscriber can indicate via said subscriber's mobile network terminal device whether calls directed to said subscriber should be routed to a prescribable fixed network terminal device.

10 The invention is based on the object of facilitating the employability of a fixed network terminal device via a specific service for a mobile network subscriber.

An exemplary embodiment of the invention is explained in greater detail below with reference to the drawing, whereby the drawing comprises one Figure.

The Figure represents an exemplary configuration wherein the realization of the inventive service logic is based on an intelligent network IN. An inventive 5 FMC service, however, need not necessarily be realized on a service control point SCP of an IN.

Given an FMC service whose service logic is realized in a service control point SCP, the caller has a mobile telephone GSM available. Given an access of the subscriber to the FMC service via the mobile telephone, the FMC service logic 10 receives the mobile radiotelephone number MSISDN of the FMC service subscriber that is administratively known to the FMC service logic and that was authenticated in the mobile radiotelephone network PLMN (given an IN-based FMC service, for example, the mobile radiotelephone number of the FMC service subscriber is transmitted in the CallingPartyNumber parameter of the standardized IN protocol, see 15 ETSI Core INAP or ITU-T Recommendations Q.1218/Q.1228). The FMC service logic can automatically identify and authorize the FMC subscriber on the basis of the subscriber's mobile radiotelephone number.

This can be utilized by the subscriber of the FMC service for the use of an arbitrary fixed network terminal device in a fully digital fixed network PSTN that 20 transmits the CallingLineIdentity in order to avoid the employment of a PIN. The procedure for this is as follows:

#### Phase 1:

The subscriber selects an FMC service access code at the mobile telephone 25 GSM. The access request is potentially forwarded to the FMC service across network boundaries (here, from a mobile network PLMN via a digital fixed network PSTN). The FMC service automatically identifies the subscriber on the basis of the subscriber's mobile radiotelephone number MSISDN. In-response thereto, the FMC 30 service initiates that the subscriber should now inform the service of a connection number of a fixed network terminal device. Via voice or DTMF input, the subscriber enters the CallingLineIdentity of the fixed network terminal device that he would like

to use at his own expense for outgoing calls or other line-switched services (for example, data transmission) for a definable time duration or, respectively, until an explicit de-registration. The FMC service subsequently registers the terminal device and assigns it to the subscriber. Optionally, the FMC service can communicate a

5 selection code to the subscriber that is to be additionally employed given utilization of this fixed network terminal device (the service can distinguish between a plurality of inventive outside users of the fixed network terminal device on the basis of the selection code).

Phase 2:

10 The subscriber selects a specific FMC service access code at the fixed network terminal device and, optionally, an additional, temporary selection code before the destination telephone number. The FMC service access number is triggered in the fixed network and an inquiry is made at the FMC service logic (for example, with the existing IN procedures). This identifies the FMC service subscriber

15 on the basis of the CallingLineIdentity of the fixed network terminal device registered in phase 1 that is co-supplied in a fully digital fixed network and – optionally – also on the basis of the temporary selection code in the selected numbers (INAP parameter CalledPartyNumber), and decides about further handling of the call (for example, charge accrual) on the basis of the FMC service subscriber profile). The FMC service

20 logic controls the further handling of the call (for example, according to the existing IN procedures). The freedom from cost for the owner of the fixed network terminal can be assured on the basis of the selected, specific FMC service access code in the fixed network subscriber switching center on the basis of administrative data or controlled by the FMC service logic (for example, with the assistance of existing IN

25 procedures).

The FMC service subscriber can also use the registered fixed network terminal device for subsequent calls in the same way without requiring a separate PIn – therefor, namely until a de-registration ensues.

Phase 3:

Either automatically after the expiration of a prescribable time and/or by an explicit de-registration procedure via the mobile telephone, the fixed network terminal device that has been employed loses the property of being able to be used by

5      the FMC service subscriber at the subscriber's own expense or, respectively, of being able to be used by the FMC service subscriber at the expense of a third party. (Given an explicit de-registration procedure, which is again to be implemented via the mobile network terminal device, analogous to the registration procedure, the FMC service checks whether there is already a registration for the CallingLineIdentity indicated by

10     the subscriber. When this is the case, the de-registration is implemented.)

The administration of subscriber-individual PINs for the use of arbitrary fixed network terminals is thus superfluous for FMC services.

FMC service sub-functions other than the described method for using arbitrary fixed network terminals can also be administered without the employment of

15     a PIN by the subscriber when the subscriber implements the administration only via his mobile radiotelephone. The required subscriber identification is carried out by the mobile radiotelephone network in the same way as described for the method for using arbitrary fixed network terminals. Subscriber-individual PINs can thus be generally foregone in FMC services when all subscriber inputs for administration of services

20     ensue only via the subscriber's mobile radiotelephone.

Abbreviations Employed:

BTS	: base transceiver system
BSC	: base station controller
HLR/AC	: home location register / authentication center
25    IN	: intelligent network
INAP	: In application protocol
ISUP	: ISDN user part
LEX-SSP	: Local exchange with SSP functionality
MSC-SSP	: Mobile switching center with SSP functionality
30    MAP	: mobile application part

PSTN: : Public switched telephone network  
PLMN : public land mobile network  
SSP : service switching point